# User information manual

## High efficiency condensing gas boiler

**E50C**

**WARNING!**
**Installation and service must be performed by a licensed professional, service agency or the gas supplier.**

**WARNING!**
**If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

- **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**
- **WHAT TO DO IF YOU SMELL GAS**
  - **Do NOT try to light any appliance.**
  - **Do NOT touch any electrical switch.**
  - **Do NOT use any phone in your building.**
  - **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
  - **If you cannot reach your gas supplier, call the fire department.**

Rinnai
EXPERIENCE OUR INNOVATION

**Address: 103 International Drive, Peachtree City, GA, 30269**
**Toll-free: 1-800-621-9419 • Fax: 678-829-1666 • www.rinnai.us**

**Notice! This manual must be retained for future reference.**

8U.52.65.00 /06.13 *Changes reserved*

**Contents of instructions**
These instructions contain important information for the safe use of Rinnai E-Series gas boilers.
These user instructions are intended for the owner or responsible tenant of the premises where the boiler is installed.

**Subject to technical changes**
Changes may be made to the illustrations, process steps and technical data as a result of our policy of continuous improvement without prior notice.

**Updating of documentation**
Please contact us if you have any suggestions for improvements or corrections.

Find our contact details on the back of this manual.

## Safety and general instructions

Please observe these instructions in the interest of your own safety.

## Designated use

The boiler is designed to heat water for a central heating system and, if applicable, generating domestic hot water. The boiler is delivered with a burner controller pre-installed.The boiler can be fitted with a modulating outdoor reset control ARV12 (included), a room controller RS100 (optional), a zone controller (optional) or an On/Off thermostat or relay panel end switch (accessories).

## Hazard definitions

The following defined terms are used throughout the documentation to bring attention to the presence of hazards of various risk levels. Notices give important information concerning the operation of the product.

**DANGER**

**DANGER:**
**Indicates the presence of hazards that will cause severe personal injury, death or substantial property damage.**

**WARNING**

**WARNING:**
**Indicates the presence of hazards that can cause severe personal injury, death or substantial property damage.**

**CAUTION**

**CAUTION:**
**Indicates presence of hazards that will or can cause minor personal injury or property damage.**

**NOTICE**

**NOTICE:**
**Indicates special instructions on installation, operation or maintenance that are important but not related to personal injury or property damage.**

These operating instructions describe the operation of the Rinnai E-Series condensing gas boilers. This manual is for the end user. For installation and servicing there is a installation & servicing instructions manual for the installer.

Read this manual fully before operating the boiler. In case of doubt or errors contact your installer. The manufacturer reserves the right to change the specifications and dimensions without prior notice.

Work on the boiler must be carried out by a State licenced contractor, (Ref: Gas Safety Installation and Use ) using correctly calibrated instruments with current test certification.

## FOR YOUR SAFETY READ BEFORE OPERATING

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

**A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do NOT try to light the burner by hand.**

**B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.**

**WHAT TO DO IF YOU SMELL GAS**

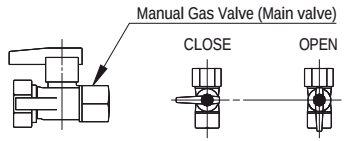
- **Do NOT try to light any appliance.**
- **Do NOT touch any electrical switch.**
- **Do NOT use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

**C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a licensed professional. Force or attempted repair may result in a fire or explosion.**

**D. Do not use this appliance if any parts have been under water. Immediately call a licensed professional to inspect the appliance and to replace any part of the control system and any gas control which has been under water.**

## OPERATING INSTRUCTIONS

1. **STOP! Read the safety information above this label.**
2. **Turn off al electrical power of the appliance.**
3. **Set the thermostat or other operating control to the lowest setting.**
4. **This appliance is equipped with an ignition device which automatically lights the burner. Do NOT try to light the burner by hand.**
5. **Close main gas shut off valve.**
6. **Wait (5) minutes to clear out any gas. Then smell for gas. Including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.**
7. **Open main shut off valve.**
8. **Set the thermostat or other operation control to desired setting.**
9. **Turn on all electric power to the appliance.**
10. **If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.**




## TO TURN OFF GAS TO APPLIANCE

1. **Turn off all electric power to the appliance if service is to be performed.**
2. **Set the thermostat or other operating control to the lowest setting.**
3. **Close main gas shut off valve.**

**DANGER**

**Should overheating occur or the gas supply fail to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.**

**WARNING**

**Protection for corrosion**

Do not use any sprays, chlorine containing agents, solvents, paint etc. around the boiler or around the air intake supply entrance of the boiler. These substances have negative influences on the boiler and can lead to corrosion resulting in failure of the boiler.

| **Products to avoid present in boiler room and/or around combustion air intake** |
|---|
| Spray cans containing chloro-/fluorcarbons |
| Ammonium and/or ammonium solutions |
| Permanent wave solutions (hair product) |
| Chlorinated waxes and/or cleaners |
| Swimming pool chemicals based on chlorine |
| Calcium chloride used for thawing |
| Sodium chloride used for water softening |
| Refrigerant leaks |
| Paint or varnish removers |
| Hydrochloric acid/muriatic acid |
| Cements and glues |
| Antistatic fabric softeners used in clothes dryers |
| Chlorine-type bleaches, detergents, and cleaning solvents found in household laundry rooms |
| Adhesives used to fasten building products and other similar products |
| **Areas likely to have contaminants** |
| Dry cleaning/laundry areas and establishments |
| Swimming pools |
| Metal fabrication plants |
| Beauty shops |
| Refrigeration repair shops |
| Photo processing plants |
| Auto body shops |
| Plastic manufacturing plants |
| Furniture refinishing areas and establishments |
| New building construction |
| Remodeling areas |
| Garages with workshops |

**NOTICE**

**Checking the water pressure**

Check the water pressure in the central heating installation regularly.

Use only potable water for filling.

Additives only after clearance by Rinnai.

Contact your installer in case of doubt.

# Description of the boiler

The Rinnai E boiler is a room sealed, condensing and modulating central heating boiler with an integrated hot water facility.

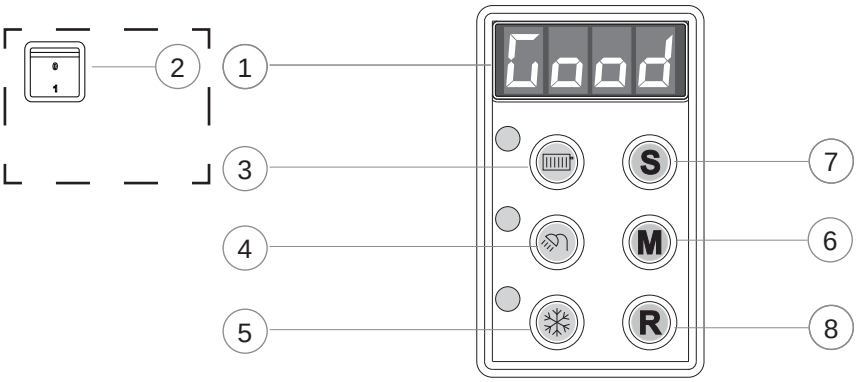
The boiler is provided with a integrated control system. Because an outdoor sensor is connected to the boiler, the boiler works weather dependantly. This means that the boiler control measures the outside temperature and flow temperature. With this data the boiler calculates the optimal flow temperature for the installation.

When the boiler is connected to an RS100 room thermostat information can be retrieved from the boiler. For more information about the Rinnai thermostats. Please refer to the user manuals.

On the bottom left side of the front panel there is a small door. Through the transparent panel you can see the boiler status on the display. After opening this door you will find the function buttons.

On the following pages you will find the explanation of the function buttons and display messages.

## Explanation of the function buttons




**NOTICE**

**Only licensed professionals who are trained for these boilers are permitted to make alterations in the controller to program the boiler to the installation.**

1. **Display**.
   See following pages for further information.
2. **ON-OFF Switch (Placed separately next to the boiler)**. This switch turns the power supply to the boiler on or off.
3. **Central Heating program button.**
   Switching the Central Heating on or off (Led on/off);
4. **Hot Water program button.**
   Switching the Domestic Hot Water (DHW) facility on or off (Led on/off);
5. **Pump program button.**
   When the pump program LED is ON, the pump is switched into a continuous circulation mode. When the pump mode is switched OFF, LED is off the pump is control by the boiler processor.

**Do not activate the pump program button. Call your licensed professional before if alterations to the boiler are required.**

*During freezing temperatures it is possible (when there is no outside sensor connected), to manually place the circulation pump in constant circulation mode, thus reducing the chance of freezing pipes (garage, attic or other cold spaces / rooms) which are sensitive to frost.*

**NOTICE**

**NOTICE**

*When the pump is switched on continuously it can lead to undesired heating up of the central heating system during the summer and adversely effect the boilers operation.*

**6 Mode-button.**
*Only for Service personel*

**7 Step-button.**
*After briefly pressing, the water pressure can be retrieved.*
*After pressing for 5 seconds it switches from the Good-state to technical read out and vice versa (see following pages);*

**8 Reset-button.**
*When a fault occurs it will be shown by the flashing E (Error) with a number code after which the boiler is shut down. After pressing the reset key you can try to start the boiler again. If the error message keeps occurring contact your installer.*

**WARNING**

**DO NOT attempt to make repairs or remove any of the boiler panels. Contact a licensed professional to make necessary repairs or adjustments.**

# The boiler display

Two boiler displays, “Good or Technical” see below.

## Good

or standard read out.
During this reading the display will only show what is necessary. Under normal circumstances the display will give a **Good** reading. In case of a fault this will be shown with, alternate display of **Good,** with an **E** or **BL** code. See further "Errors, maintenance and warranty" .

## Technical

The second way is a technical read out. In normal situations the following will be shown:

- on the left the status in which the boiler is active (see bottom of this page);
- on the right the supply temperature in °F;

- the water pressure in the installation in PSI.

When a message (**E** or **BL** code) is necessary this will be shown instead of the technical read out.

**To switch over from the Good-state to the Technical read out (and vice versa):**
**- Press 5 sec. on the STEP-button.**

**Operation indication**
(in the first display position by technical read out)

| | |
|---|---|
| 0 | No heat demand |
| 1 | Fan pre/post purge |
| 2 | Ignition phase |
| 3 | Burner active on central heating |
| 4 | Burner active on DHW |
| 5 | Fan check |
| 6 | Burner off when room thermostat is demanding |
| 7 | Pump overrun phase for central heating |
| 8 | Pump overrun phase for hot water |
| 9 | Burner off because of to high flow temperature |
| A | Automatic de-aeration program (Press no button for 17 min.) |

# Water pressure in the central heating system

The installation will function optimally with a water pressure of between 16 and 18 PSI.

If the water pressure drops below 16 PSI, the display will show **FILL**. During this message the boiler will remain functioning at a reduced level. After replenishing the system (see following chapter) just above 22 PSI the message **FILL** will disappear and the boiler will function normally again.

When the water pressure drops below 10 PSI, the display will show a flashing **FILL** text.

The boiler will shut down and will function normally again after replenishing the system to just above 22 PSI.

To retreive the water pressure on the display from the **Good** reading:

- Press the Step key once briefly.
  *The water pressure will be shown.*

Press the Step key briefly to return to the **Good** reading.

Water pressure is too high (>42 PSI), if HIGH indication remains continuously visible, the boiler is taken out of operation. The installation pressure needs to be decreased by draining water until the pressure is between 16 and 18 PSI.

**Message ' Water pressure too low' on your RS100 thermostat.**
*On the display of the RS100 a low water pressure can be indicated. For further information see the relevant user manual.*

## Replenishing the central heating system

The central heating installation needs to be filled with potable (drinking) water. For topping up the installation you use the filling loop according to the following procedure:

**NOTICE** **Contact your licensed professional installer if your installation is not provided with a filling loop.**

1 Switch all functions off (heating, DHW and pump);

2 Briefly push the 'STEP'-button: P x.x = water pressure in PSI;

3 Slowly open the filling loop (Indication on display increases);

4 Fill up slowly to between 16 and 18 PSI;

5 STOP appears on the display;

6 Close the filling loop;

7 De-aerate the complete installation , start at the lowest point;

8 Check the water pressure and if necessary top it up;

9 Close the filling loop;

10 Activate functions required (heating, DHW and/or pump);

11 If A xx appears on the display, wait for 17 minutes;

12 Check the waterpressure and if necessary top it up to 16 to 18 PSI

13 Close the filling loop;

14 Press the 'STEP'-button;

15 Be sure that the filling loop is closed.

After the automatic de-aeration programm (A xx) is finished the boiler will return to the **Good** reading or Technical reading.

***The boiler will not function directly. The automatic de-aeration program of about 17 minutes will start after one of the three program buttons is pressed. The display will show A XX where A stands for Automatic de-aeration program Active and the number on the right indicates the actual water temperature of the boiler.***

Check the water pressure regularly and top up the installation when necessary.
The working pressure of the installation should be between 16 and 18 PSI

***It can take a while before all air has disappeared from a filled installation. Especially in the first week noises can be heard which indicate the presence of air. The automatic air vent in the boiler will remove the air, which means the water pressure will reduce during this period and therefore topping up with water will be necessary to adjust the flow water temperature***

## Turning the boiler off

**Holiday period:**
Adjust the thermostat* to the holiday period. See the user thermostat manual. The hot water facility can be switched off by means of the program button on the control panel.

**Re-setting the central heating system:**

Switch off the three program buttons, when these are activated. Switch off the power supply. When the boiler is being drained one should take into account that a part of the heating water will remain in the boiler. When risk of freezing arises one should take care that the remaining central heating water in the boiler does not freeze.

**Holiday**
** If you have a RS100 thermostat it is provided with a holiday program. The holiday period can be adjusted on the thermostat itself. The central heating and DHW supply are switched off during that period. There is also the option that only the central heating is switched off. With all of these possibilities the freeze protection system is active.*

# Error, maintenance and warranty

E 11

bL60

If a fault is detected the boiler will be blocked. This will be reflected, by an alternate display of **Good,** with an **E** of Error or a **BL** of Blocking and a number code.

**NOTICE**

**You can try to reset the boiler by pressing the Reset key once. If the problem remains please contact your installer and inform them about the fault and give them the number code.**

**NOTICE**

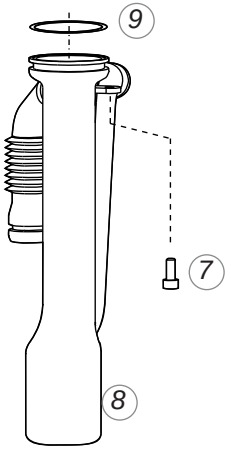
**If you discover any leaks from the boiler contact your installer.**

**NOTICE**

**We advise you to obtain a service contract with your installer for regular maintance and adjustment to keep your boiler safe and in good condition.**

**NOTICE**

**The casing of the boiler consists of plastic parts which can be cleaned with a normal non abrasive cleaning agent.**




Periodic cleaning of the condensate collection and disposal system must be carried out.

Before putting the boiler into operation after periodic cleaning fill the condensate trap with 1.27 cups / 300 ml of water.

Step 1: Condensate trap

- first remove the screw (7);
- pull the condensation cup (8) downwards, out of the condensate tray
  Check this for impurities. If there are no impurities it is not necessary to clean the condensate cup;
- check the O-ring (9) of the cup and replace it if necessary;
- clean the parts by flushing it with clean water;
- grease the O-ring again with acid free O-ring grease to make fitting easier;

- if there is a leak at the condensate trap (8) replace complete condensate trap by # 809000100;

Step 2: Refitting is done in reverse order.
Note that all gaskets seal completely.

**NOTICE**

**Maintenance or changes to the appliance may only be carried out by a licensed professional.**

You can find the warranty conditions in the warranty card which is supplied with the boiler.

Rinnai®

EXPERIENCE OUR INNOVATION™

| Details of your installer: | |
|---|---|
| Name of installer: | |
| Address: | |
| Contact: | |
| Phone number: | |
| Phone number outside business hours: | |

800000047 06/2013

**Distributor for the USA**
Rinnai America Corporate • 103 International Drive • Peachtree City, GA 30269
Toll Free: (800) 621-9419 • Tel: (678) 829-1700 • Fax: (678) 829-1666 • E-mail: info@rinnai.us • Internet: www.rinnai.us

E. & O. E.

This renewed publication cancels all previous installation instructions. The company reserves the right to change the specifications and dimensions without prior notice.